

REMARKS

Claims 2, 8, 11, and 13-16 have been cancelled. Claims 1, 3-5, 9, and 12 have been amended. New dependent claims 17-26 have been added.

Applicant affirms the election of the invention of Group I, drawn to apparatus. The non-elected method claims 13-16 have been cancelled. All pending claims are in Group I.

The specification has been amended to update the status of the parent application. The specification has also been amended at various places to change "centripetal" to "centrifugal" to correctly describe the direction of force acting on the liquid.

The drawings have been corrected to change reference No. 510 in Fig. 10 to 570.

Regarding the double-patenting rejections at Sections 8-18 of the 03/21/2005 Office Action, a Terminal Disclaimer is enclosed.

Turning to the rejections at paragraph 20 of the 03/21/2005 Office Action, Bergman, U.S. Patent No. 5,500,081, describes an apparatus having a wafer holder 30 which holds a disc-shaped wafer 20 using fingers 34. Column 8, line 3-9 and Figs. 1 and 2. The wafer holder 30 spins within a processing bowl 14. The process liquid or vapors are introduced into the bowl 14 and contact the wafer 20. There are no elements or surfaces between the wafer 20 and the bowl 14 (Bergman, Figs. 1 and 2).

In Bergman, the process chamber is formed by the bowl 14 and the head 12. These elements do not rotate, and are not rotors. The rotating wafer holder 30 in Bergman correspondingly does not form a process chamber. Rather, it is contained

within the chamber formed by the bowl 14 and the head 12. In contrast, claim 1 has been amended to include the content of cancelled claim 8, and now describes a first rotor engageable to a second rotor to form a process chamber. Bergman does not disclose a first rotor engageable to a second rotor, to form a process chamber, as in amended claim 1.

In addition, in Bergman, fluid does not exit the process chamber via centrifugal force. Rather, fluid exits the process chamber via gravity through an outflow line 51, with or without use of the pump 65. No centrifugal fluid movement as described in amended claim 1 is suggested by Bergman.

Regarding the rejection of claim 6, in Bergman, U.S. Patent No. 5,500,081, the wafer 20 is spaced relatively distant from surrounding surfaces, as shown in Figs. 1, 7, and 14. In contrast, claim 6 describes a chamber which conforms to the shape of the workpiece. As described in the application at 0024, this helps to control physical properties of the processing fluid, a concept not suggested by Bergman.

Turning to the rejections at paragraphs 23-24 of the 03/21/2005 Office Action, Orr, U.S. Patent No. 3,727,620, describes a rinsing and drying device having a rotary member 16 which supports a wafer carrying basket 13. The rotary member 16 is located within a tub 18. The tub 18 and the hinged lid 51 form a chamber 62. Column 3, lines 61-64.

Relative to amended claims 1, 9, and 12, Orr does not disclose a first rotor engageable to a second rotor to form a process chamber. Similarly, Orr does not suggest a process chamber for substantially enclosing a workpiece on all sides. To the contrary, Orr teaches that:

"Of course, the particular basket chosen should not enclose the faces of the wafers." Column 2, lines 61-62.

Hence, Orr teaches away from enclosing a wafer within a chamber, as claimed.

Like Bergman, Orr also does not suggest removing fluid from a chamber via centrifugal force, or a cup or sump which allows fluid to be collected and reused.

Orr uses centrifugal force to remove spent fluid from the wafers. Column 1, lines 30-33; lines 59-61. However, centrifugal force is not used to remove fluid from the chamber. As shown in Fig. 2 of Orr, fluid removed from wafers via centrifugal force simply hits the side walls of the tub 18, and drains down to the drain opening 69. From there, the fluid is removed through a drain line 71. Column 4, lines 17-22. The intent is to have the spent fluids flush off of the inner wall and drained through the perforations 68 to the drain opening 69. Column 4, lines 12-17. Indeed, Orr intends to remove spent fluids entirely.

"The spent fluids are efficiently removed through perforations or slots 68 into isolation chamber 67 and drain 71." Column 6, lines 34-37.

Accordingly, Orr also teaches away from any connection between a cup or sump and a fluid inlet, as claimed. The combination of Bergman and Orr together fails to suggest the claimed first and second rotors, centrifugal removal of fluid from a process chamber, or use of centrifugal force for recycling spent collected process fluid back into the chamber.

In view of the foregoing, it is submitted that the claims are in condition for allowance. A Notice of Allowance is requested.

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Respectfully submitted,

Customer No. 45540
Perkins Coie LLP
Patent - LA
P.O. Box 1208
Seattle, WA 98111-1208
Phone: (310) 788-9900
Fax: (206) 332-7198

PERKINS COIE LLP

By: Kenneth H. Ohriner
Kenneth H. Ohriner
Reg. No. 31,646

Amendments to the Drawings:

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